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The local and planetary scales of wave disturbances for synchronous measurements of atmospheric admixtures

Khutorova O., Teptin G.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The moving disturbance characteristics are investigated using the original method employing synchronous time series of measured admixtures and meteoparameters in subsurface atmospheric layer. The method is based on the phase part of cross-wavelet-spectra for long time series. From the long-period measurements (1996-2003) at nine stations spread on the distance from 0.9 to 260 km the main characteristics of mesoscale and planetary waves are determined. The spatial scales and phase velocities of admixture concentration variations are estimated. Seasonal variability of wave observation probability, average period, wavelength, amplitude and phase velocity is established for all components of atmospheric admixtures and meteoparameters.